

Serial No.: 10/788,891
Art Unit: 1714
Page 6

REMARKS

Pending Claims

Claim 1 has been cancelled without prejudice to filing the subject matter of this claim in one or more subsequent applications or to reintroduction in the present application. In addition, claims 5, 6, 8, and 12-14, which had depended directly from claim 1, have been amended to depend directly from claim 40. Also, claim 40 has been amended to more clearly describe Applicants' invention. No new matter has been added. Claims 5-15, 17-18, 21-25, 34-35, and 40 are pending.

Non-Statutory Double Patenting

In paragraph 3 of the Office Action, claims 1, 5-15, 17-18, 21-25, 34-35, and 40 have been rejected on the grounds of non-statutory obviousness-type double patenting as being unpatentable over claims 1-27 of U.S. Patent No. 6,723,783 (Palumbo et al.) and over claims 1-38 of U.S. Patent No. 6,833,026 (Palumbo). Also, claims 1, 5-15, 17-18, and 40 have been rejected on the grounds of non-statutory obviousness-type double patenting as being unpatentable over claims 1-32 of U.S. Patent No. 7,173,078. Regarding each of these rejections, the Examiner states that, although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claims encompass the presently claimed electrophile/nucleophile reaction products and reactive groups within the patented claims.

While Applicants respectfully disagree with this rejection, in order to advance the prosecution of this application, Terminal Disclaimers are filed herewith. In view of this filing, Applicants respectfully request that the non-statutory obviousness-type double patenting rejections be withdrawn.

Serial No.: 10/788,891

Art Unit: 1714

Page 7

Rejection of Claims Under 35 U.S.C. § 112

In paragraph 4 of the Office Action, claims 1, 5-15, 17-18, 21-25, 34-35 and 40 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Examiner states that it is unclear what is required of "aromatic compounds which undergo addition-elimination reactions" in the present claims that either explicitly recite this requirement or implicitly have this requirement by virtue of their use of aromatic compounds in the claimed reaction.

Applicants respectfully disagree and believe this phrase is clear, particularly in view of the present specification. However, regarding claims 1, 5-15, and 17-18, in order to advance the prosecution of the present application, claim 1 has been cancelled without prejudice to filing the subject matter of this claim in one or more subsequent applications or to reintroduction in the present application, making the rejection of this claim moot. Furthermore, claims 5, 6, 8, and 12-14, which had depended directly from claim 1, have been amended to depend directly from claim 40. Since claim 40 does not, either explicitly or implicitly, recite that the first group, the second group, or the third group is an aromatic compound which undergoes addition-elimination reactions, Applicants believe that this claim is therefore not indefinite. Thus, claims 5-15 and 17-18, which depend directly or indirectly from claim 40, are also not indefinite.

Finally, regarding claims 21-35 and 34-35, none of these claims either explicitly or implicitly recite the phrase identified by the Examiner. Thus, these claims are also not indefinite.

Applicants therefore believe that claims 1, 5-15, 17-18, 21-25, 34-35, and 40 are not indefinite and respectfully request that this rejection be withdrawn.

Serial No.: 10/788,891

Art Unit: 1714

Page 8

Rejections of Claims Under 35 U.S.C. § 102

Moffatt et al. '932

Claims 1 and 8-13 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Moffatt et al. '932 (U.S. Patent No. 6,221,932), taken in view of the evidence in Organic Chemistry.

In paragraph 7 of the Office Action, the Examiner states that Moffatt et al. '932 discloses a method of making a modified pigment comprising reacting a pigment having attached aromatic ester group with polymer such as polyethylene glycol, polyamine, or polyethyleneimine, and that the reaction occurs by nucleophilic substitution. The Examiner notes that Applicants have argued that Moffatt et al. '932 is not a relevant reference against the present claims because the aromatic ester groups of this reference are not the type that undergo addition-elimination as presently claimed. However, the Examiner states that while Moffatt et al. '932 discloses that the aromatic ester group undergoes nucleophilic substitution and not addition-elimination reactions as presently claimed, this does not mean that the aromatic ester group does not or cannot undergo addition-elimination reactions, and provides, as evidence to support this position, Organic Chemistry (pages 1035 and 1048-1049) which discloses that elimination-addition is a specific type of nucleophilic substitution or specific mechanism used in nucleophilic substitution. Thus, the Examiner concludes that Moffatt et al. '932 anticipates the present claims.

Applicants continue to respectfully disagree. However, in order to advance the prosecution of the present application, claim 1 has been cancelled without prejudice to filing the subject matter of this claim in one or more subsequent applications or to reintroduction in the present application, making the rejection of this claim moot. Furthermore, claims 8 and 12-13, which had depended directly from claim 1, have been amended to depend directly from claim 40. Thus, claims 8-13 depend directly or indirectly from claim 40, reciting further embodiments of the present invention. Claim 40 does not recite that the first group, the second group, or the third group is an aromatic compound which undergoes addition-elimination

Serial No.: 10/788,891

Art Unit: 1714

Page 9

reactions, and, as a result, has not been rejected as being anticipated by Moffatt et al. '932. Since claim 40 is not anticipated by Moffatt et al. '932, claims 8-13 are therefore also not anticipated by this reference.

Applicants therefore believe that claims 1 and 8-13 are not anticipated by Moffatt et al. '932 taken in view of the evidence in Organic Chemistry, and respectfully request that this rejection be withdrawn.

WO 99/31175

Claims 1, 5, 8-9, 12, 14-15, 17-18, and 40 have been rejected under 35 U.S.C. § 102(b) as being anticipated by PCT Publication No. WO 99/31175.

In paragraph 8 of the Office Action, the Examiner states that WO 99/31175 discloses a method of making a modified pigment comprising reacting carbon black pigment which has attached organic group which has attached ionic group with at least one polymer which attached to the ionic group. In particular, the Examiner identifies the third type of modified carbon black disclosed by WO 99/31175 – carbon black having attached organic group to which is attached ionic or ionizable group to which is attached counterionic group – as disclosing the presently claimed modified pigment. In addition, the Examiner notes that, while Applicants have argued that the groups are attached using counterion exchange, there is no requirement in the present claims regarding the mechanism by which the groups attached to the pigment react with each other. Rather, the present claims only require that the first group react with the second group to form modified pigment which is then reacted with additional groups (i.e., polymer). The Examiner concludes that, given that WO 99/31175 discloses reacting first group (i.e., organic group) with second group (i.e., ionic or ionizable group) and then with counterionic group, this reference therefore meets the requirement of the present claims.

Applicants continue to respectfully disagree. However, in order to advance the prosecution of the present application, claim 1 has been cancelled without prejudice to filing the subject matter of this claim in one or more subsequent applications or to reintroduction in

Serial No.: 10/788,891
Art Unit: 1714
Page 10

the present application, making the rejection of this claim moot. Furthermore, claims 5, 8, 12, and 14, which had depended directly from claim 1, have been amended to depend directly from claim 40. Thus, claims 5, 8-9, 12, 14-15, and 17-18 depend directly or indirectly from claim 40, reciting further embodiments of the present invention.

Regarding claim 40, this claim recites a method of making a modified pigment, and Applicants believe this method is not disclosed, taught, or suggested by WO 99/31175. In particular, the method of claim 40 recites reacting a pigment having a first chemical group with a second chemical group to form a pigment having attached a third chemical group. The second chemical group reacts with the first chemical group to form the third chemical group, and each of these groups are selected from the group consisting of acyl azides, isocyanates, ketones, aldehydes, anhydrides, amides, imides, imines, α,β -unsaturated ketones and aldehydes, alkyl halides, epoxides, alkyl sulfates, amines, hydrazines, thiols, hydrazides, oximes, carbanions, and salts thereof.

By comparison, the third type of modified black disclosed by WO 99/31175, specifically identified in the Office Action, is prepared by a method in which a modified carbon product that has been functionalized with at least one functional group such as sodium sulfonate groups is treated with a salt such as an alkyl ammonium salt to form a modified carbon black in which the alkyl ammonium salt is the counterion to the sodium sulfonate group (see page 16, line 27 to page 17, line 24 of WO 99/31175). It appears that the Examiner believes that the sodium sulfonate group would relate to the first chemical group of present claim 40, the alkyl ammonium salt would relate to the second chemical group of present claim 40, and the organic group comprising at least one ionic or ionizable group to which is attached at least one counterionic or counterionizable group of the resulting modified carbon product would relate to the third chemical group of present claim 40. However, as noted by Applicants previously, the method described in WO 9/31175 is an ion exchange reaction, which occurs between ionic or ionizable groups having opposite charges. No groups of this type are recited in present claim 40. In particular, there are no pairs of groups in the list recited in claim 40

Serial No.: 10/788,891
Art Unit: 1714
Page 11

that can result in an organic group comprising at least one ionic or ionizable group to which is attached at least one counterionic or counterionizable group as described in WO 99/31175.

Thus, the method of present claim 40 is not the method described for preparing the third type of modified carbon product of WO 99/31175, and, therefore, Applicants believe that the method of claim 40 is not anticipated by this reference. Furthermore, claims 5, 8-9, 12, 14-15, and 17-18, which depend directly or indirectly from claim 40, recite further embodiments of the present invention and, for at least the reasons discussed above, are also not anticipated by this reference.

Applicants therefore believe that claims 1, 5, 8-9, 12, 14-15, 17-18, and 40 are not anticipated by WO 99/31175 and respectfully request that this rejection be withdrawn.

Moffatt et al. '257

Claims 21-22, 24, 34-35, and 40 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Moffatt et al. '257 (U.S. Patent No. 6,323,257).

In paragraph 9 of the Office Action, the Examiner states that Moffatt et al. '257 discloses modified pigment and ink jet ink comprising modified pigment wherein the modified pigment has attached at least one directly attached organic group which is the reaction product of (2-sulfatoethyl)-sulphone group and at least one nucleophilic polymer such as those obtained from ester of acrylic acid (i.e., polyacrylates) and containing polyalkylene glycol. In addition, the Examiner notes that Applicants argued that Moffatt et al. '257 is not a relevant reference against the present claims given that Moffatt et al. '257 clearly teaches modified pigment which is reaction product of polymerization reaction with attached reactive group (i.e., (2-sulfatoethyl)-sulphone), which is in direct contrast to the present claims that require modified pigment comprising pigment having attached at least one organic group which is the reaction product of at least one (2-sulfatoethyl)-sulphone group and at least one polymer. However, while the Examiner agrees that the modified pigment of Moffatt et al. '257 is prepared by reacting polymer having first chemical group with monomer which is then polymerized, the Examiner also states that the end result of Moffatt et al. '257 is the same as presently claimed -

Serial No.: 10/788,891

Art Unit: 1714

Page 12

i.e., attachment of a nucleophilic polymer to the reactive group that is attached to the pigment.

The Examiner therefore concludes that, absent evidence of criticality regarding the presently claimed process and given that Moffatt et al. '257 discloses product as presently claimed (i.e., pigment having nucleophilic polymer attached to (2-sulfatoethyl)-sulphone group that is attached to pigment), this reference meets the requirements of the present claims.

Applicants continue to respectfully disagree. Regarding claims 21, 22, and 24, Applicants believe that the modified pigment particle disclosed in Moffatt et al. '257 is not the modified pigment of present claim 21. In particular, and as noted by the Examiner, Moffatt et al. '257 clearly teaches a modified pigment which is the reaction product of a polymerization reaction with the attached reactive groups (see column 6, lines 13-15). Moffatt et al. '257 teaches that the presence of the attached reactive groups allows the polymerization reaction to occur in water (see column 6, lines 7-9). Moffatt et al. '257 also clearly states the reaction is a radical chain polymerization that occurs at the reactive group (see column 6, line 15-18). This is further supported by the extensive list of radical-polymerizable monomers which can be used (see column 6, line 27 to column 16, line 16).

Since polymerization occurs with the reactive group, the modified pigment of Moffatt et al. '257 is the reaction product of this reactive group (such as a (2-sulfatoethyl)-sulphone group) and a monomer. This would not be expected to be the same as the modified pigment recited in present claim 21, wherein the attached organic group comprises the reaction product of at least one (2-sulfatoethyl)-sulphone group and at least one nucleophilic polymer. For example, the reaction of this type of group and a nucleophilic polymer would be expected to occur at the nucleophilic site of the polymer, and this is discussed in the present application (see page 9, lines 1-20). Thus, the polymer would react to form a polymeric group that is attached from the nucleophile of the polymer. By comparison, the reaction product of a (2-sulfatoethyl)-sulphone group with a monomer during polymerization would be expected to incorporate the reactive group as the polymer forms. In essence, the (2-sulfatoethyl)-sulphone group would form a vinyl group that would participate in the polymerization as a polymerizable monomer. Thus, the polymer would be attached along its backbone, which is formed during the

Serial No.: 10/788,891

Art Unit: 1714

Page 13

polymerization. This is also true for polymers prepared using monomers having nucleophilic groups, such as those included in the list in Moffatt et al. '257 – reaction with these monomers occurs by polymerization and would therefore be expected to attach along the polymer backbone and not at the nucleophilic group.

Therefore, the reaction product of a modified pigment having attached at least one (2-sulfatoethyl)-sulphone group and a monomer (from Moffatt et al. '257) would be expected to be structurally very different from the reaction product of a modified pigment having attached at least one (2-sulfatoethyl)-sulphone group and a nucleophilic polymer (as recited in present claim 21). In addition, the amount of attached polymer would also be expected to be different since the size of the reacting species (monomer versus polymer) is very different, as are their reactivities (vinyl group reactivity in a radical polymerization versus nucleophilic reactivity). Also, the size of the attached polymer could also differ, depending, for example, on the extent of polymerization.

Since the modified pigment disclosed in Moffatt et al. '257 is not the same as the modified pigment recited in claim 21, Applicants believe that this claim is therefore not anticipated by this reference. Furthermore, claims 22 and 24, which are dependent from claim 21, recite further embodiments of the present invention and, for at least the reasons discussed above, are also anticipated by Moffatt et al. '257.

Regarding claims 34-35, claim 34 relates to an ink composition comprising a liquid vehicle and a modified pigment, wherein the modified pigment comprises a pigment having attached at least one organic group, wherein said organic group comprises: the reaction product of a pigment having attached at least one (2-sulfatoethyl)-sulphone and at least one nucleophilic polymer. For the reasons discussed in more detail above regarding claims 21, 22, and 24, Moffatt et al. '257 does not disclose this type of ink composition since the modified pigment of Moffatt et al. '257 is not the modified pigment of the present invention. Therefore, Applicants believe that claim 34 is not anticipated by Moffatt et al. '257. Furthermore, claim 35, which depends directly from claim 34, recites a further embodiment of the present invention and, for at least the reasons discussed above, is also not anticipated by this reference.

Serial No.: 10/788,891
Art Unit: 1714
Page 14

Finally, regarding claim 40, this claim recites a method of making a modified pigment comprising reacting a pigment having attached a first chemical group with a second chemical group to form a pigment having attached a third chemical group. The first chemical group comprises at least one electrophile and said second chemical group comprises at least one nucleophile, or vice versa. The first chemical group, the second chemical group, and the third chemical group each comprises at least one organic group selected from a recited list. Applicants believe that this method is not disclosed, taught, or suggested in Moffatt et al. '257. In particular, no reaction of a nucleophilic group is shown. Instead, Moffatt et al. '257 teaches a very different method in which a radical chain polymerization occurs at the reactive group, which does not involve a nucleophilic group as recited in claim 40. Therefore, Applicants believe that claim 40 is not anticipated by Moffatt et al. '257.

Applicants therefore believe that claims 21-22, 24, 34-35, and 40 are not anticipated by Moffatt et al. '257 and respectfully request that this rejection be withdrawn.

Rejections of Claims under 35 U.S.C. § 103

Moffatt et al. '257 in view of Moffatt et al. '932

Claim 25 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Moffatt et al. '257 (U.S. Patent No. 6,323,257) in view of Moffatt et al. '932 (U.S. Patent No. 6,221,932).

In paragraph 11 of the Office Action, the Examiner incorporates the disclosure from paragraph 9 of this Office Action with respect to Moffatt et al. '932 and states that the difference between Moffatt et al. '257 and the present claimed invention is the requirement in the claims of specific type of polymer. However, the Examiner states that Moffatt et al. '932 discloses attaching polymer such as polyethyleneimine to pigment in order to produce an ink with increased smearfastness, enhanced print quality, and improved bleed control, and further discloses the equivalence and interchangeability of polyalkylene glycols, as disclosed in Moffatt et al. '257, with polyethyleneimine. The Examiner concludes that, in light of the

Serial No.: 10/788,891

Art Unit: 1714

Page 15

motivation for using specific type of polymer disclosed by Moffatt et al. '932, it would have been obvious to one having ordinary skill in the art to use such polymer in the pigment of Moffatt et al. '257 in order to produce an ink with increased smearfastness, enhanced print quality, and improved bleed control, and thereby arrive at the claimed invention.

Applicants respectfully disagree. Claim 25 depends directly from claim 21, and, as discussed in more detail above, the modified pigment of claim 21 is not the modified pigment disclosed in Moffatt et al. '257. Furthermore, Moffatt et al. '932 cannot overcome the deficiencies of Moffatt et al. '257 since this reference describes a very different product. In particular, as discussed in more detail above, Moffatt et al. '257 clearly teaches a modified pigment which is the reaction product of a polymerization reaction with an attached reactive group (i.e. the reaction of a modified pigment and a monomer). Moffatt et al. '932 discloses a method of making a modified pigment comprising reacting a pigment having attached aromatic ester group with polymer such as polyethylene glycol, polyamine, or polyethyleneimine, and that the reaction occurs by nucleophilic substitution. Therefore, one skilled in the art would not combine these references. The monomers used in Moffatt et al. '257 are not interchangeable with the polymers used in Moffatt et al. '932 and would be expected to form very different products. In addition, the polymers identified from Moffatt et al. '932 are not the types that would be formed by the radical polymerization taught in Moffatt et al. '257.

Even if these references were combined, the resulting combination would not be the modified pigment recited in present claim 25. In particular, if one combined these references, one might be motivated to use the modified pigment having attached aromatic ester group of Moffatt et al. '932 in the polymerization reaction of Moffatt et al. '257. However, as discussed in more detail above, a reaction product resulting from polymerization (i.e., reaction with a monomer) would not be the same as the reaction product recited in present claim 25.

Applicants therefore believe that claim 25 is patentable over Moffatt et al. '257 in view of Moffatt et al. '932 and respectfully request that the rejection of this claim be withdrawn.

Serial No.: 10/788,891
Art Unit: 1714
Page 16

Moffatt et al. '257 in view of Fuchs et al.

Claims 1, 5-9, 12, and 21-25 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Moffatt et al. '257 (U.S. Patent No. 6,323,257) in view of Fuchs et al. (U.S. Patent No. 3,900,510).

In paragraph 12 of the Office Action, the Examiner states that Moffatt et al. '257 discloses a method of producing a modified pigment comprising reacting first chemical group such as (2-sulfatoethyl)-sulphone group with second chemical group (i.e., nucleophilic polymer such as polyethylene glycol) in order to form third chemical group and identifies the difference between this reference and the present claimed invention as the requirement in the claims that the first chemical group is attached to the pigment using diazonium salt of a specific type of (2-sulfatoethyl)sulphone group. However, the Examiner also states that, while Moffatt et al. '257 does not teach the use of the instantly claimed sulfatoethylsulphone group to attach to the pigment, this reference does disclose using diazonium moieties to attach the first chemical group to the pigment. In addition, the Examiner states that Fuchs et al. shows that reacting alkaline agent and the sulfuric acid ester or aminobenzylsulfone ethylenesulfonate will give the vinyl aminobenzylsulphone. The Examiner therefore concludes that it would have been obvious to one of ordinary skill in the art at the time of the instantly claimed invention to use diazonium salt to attach the first chemical group to the pigment of Moffatt et al. '257 using the compound of present claims 5-7 and 23 and to treat this compound with the alkaline compound to arrive at the compound of Moffatt et al. '257, thereby arriving at the claimed invention.

Applicants respectfully disagree. However, regarding claims 1, 5-9, and 12, in order to advance the prosecution of the present application, claim 1 has been cancelled without prejudice to filing the subject matter of this claim in one or more subsequent applications or to reintroduction in the present application, making the rejection of this claim moot. Furthermore, claims 5, 6, 8 and 12, which had depended directly from claim 1, have been amended to depend directly from claim 40. Thus, claims 5-9 and 12 depend directly or indirectly from claim 40, reciting further embodiments of the present invention.

Serial No.: 10/788,891

Art Unit: 1714

Page 17

Regarding claim 40, this claim recites a method of making a modified pigment comprising reacting a pigment having attached a first chemical group with a second chemical group to form a pigment having attached a third chemical group, wherein the first chemical group comprises at least one electrophile and said second chemical group comprises at least one nucleophile, or vice versa, and the first chemical group, the second chemical group, and the third chemical group each comprises at least one organic group selected from a recited list. As discussed in more detail above, Applicants believe that this method is not disclosed, taught, or suggested in Moffatt et al. '257. In particular, no reaction of a nucleophilic group is shown. Instead, Moffatt et al. '257 teaches a very different method in which a radical chain polymerization occurs at the reactive group and does not involve a nucleophilic group as recited in claim 40.

Fuchs et al. cannot cure the deficiencies of the method of Moffatt et al. '257 since this is not related art. Fuchs et al. describes a method of preparing the sulfuric acid ester of 1-aminobenzene-4-(β -hydroxyethyl-sulfone)-2-sulfonic acid and the 4-vinylsulfone compound thereof and also states that these compounds may be used as a coupling component in the preparation of dyestuffs (see column 3, lines 14-26 and Example 6). However, there is no teaching or suggestion that either of these compounds can or should be used as an attached group on a pigment. Only the synthesis of a dyestuff is shown, and, since this is not a modified pigment (having surface reactive groups) their corresponding reactivity would be expected to be very different. Therefore Applicants believe that one having ordinary skill in the art would not be motivated to combine the teachings of Fuchs et al. with the method of Moffatt et al. '257 since this is unrelated art.

Even if these references were combined, the resulting combination would not be the method of present claim 40. In particular, there is no disclosure, teaching, or suggestion in Fuchs et al. of a reaction of the specified compounds with a second group, particularly a nucleophilic or electrophilic group and, more particularly, any of those specified groups recited in claim 40. Thus, if one having ordinary skill in the art were to combine these references, one might be motivated to use the teaching of Fuchs et al. to form the 4-vinylsulfone compound (or,

Serial No.: 10/788,891

Art Unit: 1714

Page 18

alternatively, as support for the formation of this compound) for use in the polymerization method of Moffatt et al. '257. Clearly, this is not the method of claim 40.

Therefore, Applicants believe that claim 40 is patentable over the combination of Moffatt et al. '257 and Fuchs et al. Furthermore, claims 5-9 and 12, which depend directly or indirectly from claim 40, recite further embodiments of the present invention and, for at least the reasons discussed above, are also patentable over this combination of references.

Regarding claims 21-25, claim 21 recites a modified pigment comprising a pigment having attached at least one organic group, wherein said organic group comprises the reaction product of at least one (2-sulfatoethyl)-sulphone group and at least one nucleophilic polymer. As discussed in more detail above, Applicants believe that the modified pigment of Moffatt et al. '257 is not the same as the modified pigment of present claim 21. In particular, the reaction product of a modified pigment having attached at least one (2-sulfatoethyl)-sulphone group and a monomer (from Moffatt et al. '257) would be expected to be structurally very different from the reaction product of a modified pigment having attached at least one (2-sulfatoethyl)-sulphone group and a nucleophilic polymer (as recited in present claim 21).

Fuchs et al. cannot cure the deficiencies of the modified pigment of Moffatt et al. '257 since this is not related art. As discussed in more detail above, while Fuchs et al. describes a method of preparing the sulfuric acid ester of 1-aminobenzene-4-(β -hydroxyethyl-sulfone)-2-sulfonic acid and the 4-vinylsulfone compound thereof, this reference does not relate to modified pigments. Furthermore, there is no disclosure, teaching, or suggestion in this reference of a reaction product of at least one (2-sulfatoethyl)-sulphone group and at least one nucleophilic polymer. Therefore Applicants believe that one having ordinary skill in the art would not be motivated to combine the teachings of Fuchs et al. with the method of Moffatt et al. '257 since this is unrelated art.

Even if these references were combined, the resulting combination would not be the modified pigment of present claim 21. In particular, as discussed above, since there is no disclosure, teaching, or suggestion in Fuchs et al. of a reaction of the specified compounds with a second group, particularly a nucleophilic or electrophilic group and, more particularly, any of

Serial No.: 10/788,891
Art Unit: 1714
Page 19

those specified groups recited in claim 40, one having ordinary skill in the art might be motivated to use the teaching of Fuchs et al. to form the 4-vinylsulfone compound (or, alternatively, as support for the formation of this compound) for use in the polymerization method of Moffatt et al. '257. Clearly, this is not the modified pigment of claim 21.

Therefore, Applicants believe that claim 21 is patentable over the combination of Moffatt et al. '257 and Fuchs et al. Furthermore, claims 22-25, which depend directly from claim 21, recite further embodiments of the present invention and, for at least the reasons discussed above, are also patentable over this combination of references.

Applicants therefore believe that claims 1, 5-9, 12, and 21-25 are patentable over Moffatt et al. '257 in view of Fuchs et al. and respectfully request that this rejection be withdrawn.

Moffatt et al. '257 in view of WO 99/31157 and further in view of Moffatt et al. '932

Claims 10 and 11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Moffatt et al. '257 (U.S. Patent No. 6,323,257) in view of WO 99/31175, and further in view of Moffatt et al. '932 (U.S. Patent No. 6,221,932).

In paragraph 13 of the Office Action, the Examiner states that the difference between Moffatt et al. '257 and the present claimed invention is the requirement in the claims of specific type of polymer. However, the Examiner states that Moffatt et al. '932 discloses attaching polymer such as polyethyleneimine to pigment in order to produce an ink with increased smearfastness, enhanced print quality, and improved bleed control, and further discloses the equivalence and interchangeability of polyalkylene glycols, as disclosed in Moffatt et al. '257, with polyethyleneimine. The Examiner concludes that, in light of the motivation for using specific type of polymer disclosed by Moffatt et al. '932, it would have been obvious to one having ordinary skill in the art to use such polymer in the pigment of Moffatt et al. '257 in order to produce an ink with increased smearfastness, enhanced print quality, and improved bleed control, and thereby arrive at the claimed invention.

Applicants respectfully disagree. Claims 10-11 depend indirectly from claim 40, and,

Serial No.: 10/788,891

Art Unit: 1714

Page 20

as discussed in more detail above, Applicants believe that the method of claim 40 is not disclosed, taught, or suggested in Moffatt et al. '257. In particular, no reaction of a nucleophilic group is shown. Instead, Moffatt et al. '257 teaches a very different method in which a radical chain polymerization occurs at the reactive group, which does not involve a nucleophilic group as recited in claim 40.

WO 99/31157 cannot cure the deficiencies of Moffatt et al. '257 since this reference describes a very different method of preparing a modified pigment. In particular, as discussed in more detail above, Moffatt et al. '257 relates to a radical polymerization method. By comparison, in the embodiments of WO 99/31175 involving a reaction of an attached group, this reference teaches a) a method involving the esterification reaction of modified pigments comprising an aromatic acid group, and b) a method involving the exchange of a counter-ionizable group having at least one organic group, monomeric group, or polymeric group. These are not a polymerization method, and, as a result, would not be combined with the teaching of the method of Moffatt et al. '257.

Furthermore, Moffatt et al. '932 also cannot overcome the deficiencies of Moffatt et al. '257 since this reference also describes a very different method of preparing a modified pigment. In particular, as discussed in more detail above, Moffatt et al. '932 discloses a method of making a modified pigment comprising reacting a pigment having attached aromatic ester group with polymer such as polyethylene glycol, polyamine, or polyethyleneimine, and that the reaction occurs by nucleophilic substitution. This is therefore also not a polymerization method and, as a result, would not be combined by one skilled in the art with the teaching of the method of Moffatt et al. '257. In addition, the polymers identified from Moffatt et al. '932 are not the types that would be formed by the radical polymerization taught in Moffatt et al. '257.

Even if these references were combined, the resulting combination would not be the method recited in present claim 40. In particular, if one combined these references, one might be motivated to use the modified pigments described in either WO 99/31175 or Moffatt et al. '932 in the polymerization reaction of Moffatt et al. '257. However, clearly this is not the

Serial No.: 10/788,891

Art Unit: 1714

Page 21

method of the present invention.

Applicants therefore believe that claim 40 is patentable over Moffatt et al. '257 in view of WO 99/31175 and further in view of Moffatt et al. '932. Since claims 10-11 depend indirectly from claim 40, reciting further embodiments of the present invention, Applicants also believe that these claims are therefore also patentable over this combination of references and respectfully request that the rejection of these claims be withdrawn.

Conclusion

In view of the foregoing remarks, Applicants believe that this application is in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would further expedite the prosecution of the subject application, the Examiner is invited to call the undersigned.

Respectfully submitted,

By:



Robert M. Amici

Reg. No. 52,554

CABOT CORPORATION

Law Department

157 Concord Road

Billerica, MA 01821-7001

978-670-6191

Date: February 5, 2008

Attorney Docket No.: 99097CIPCON